

**[0020]** FIG. 4A shows layered displays in a gaming machine in accordance with one embodiment.

**[0021]** FIG. 4B shows layered displays in a gaming machine in accordance with another embodiment.

**[0022]** FIG. 4C shows another layered video display device arrangement in accordance with a specific embodiment.

**[0023]** FIGS. 5A and 5B illustrate a gaming machine in accordance with a specific embodiment.

**[0024]** FIG. 6 illustrates a control configuration for use in a gaming machine in accordance with another specific embodiment.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

**[0025]** The present invention will now be described in detail with reference to a few preferred embodiments thereof as illustrated in the accompanying drawings. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be apparent, however, to one skilled in the art, that the present invention may be practiced without some or all of these specific details. In other instances, well known process steps and/or structures have not been described in detail in order to not unnecessarily obscure the present invention.

**[0026]** Gaming machine manufacturers highly regard customer preference information. When the assignee introduced CRT-based slot machines in 1975, the reaction of some players was less than enthusiastic. The CRT screens jolted players from a gaming activity based on a complex mechanical apparatus to a single, flat, video screen. The technology of 1975 pales in comparison to that of today. And yet, amongst casino patrons and other players, the perceived value of mechanically driven reel slot machines remains high.

**[0027]** Customer preference information belonging to the assignee shows that players trust the old mechanical machines. Some players feel that a lack of mechanically driven reels causes a slot game to be cheapened—and somehow less random. Many players believe that it is impossible to externally tamper with or (to player detriment) control outcomes for a mechanically driven machine. These people also commonly believe that manipulating outcomes portrayed on a video screen is both easily accomplished and undetectable to a player. Others simply prefer the feel and appearance of an electromechanical apparatus as they pull a handle, hear and feel solenoid and latches as they engage and disengage, and watch as spinning reels click into position to display an outcome. A loyal base of players still favors the traditional mechanical stepper machines, even today.

**[0028]** The gradual disappearance of mechanical gaming machines, however, has left admirers of mechanical steppers scrambling to find their preferred machines.

**[0029]** Described herein are processor-based gaming machines that emulate a mechanical reel machine. The gaming machine includes a number of realism adaptations, such as audio, video and/or physical adaptations, where each contributes to the perception of a mechanically driven reel slot machine. Specific embodiments described herein provide video data, for output on a video display device, that adapts video data for one or more of the multiple video reels to realistically simulate a visual attribute of a real mechanical reel apparatus in a gaming machine. These realistic adaptations and simulations are described in further detail below with respect to FIGS. 1-3.

**[0030]** Before describing these embodiments, it is useful to differentiate between three types of reels in a gaming machine: mechanical reels, two-dimensional (2-D) video reels, and realistic video simulation of mechanical reels as described herein.

**[0031]** Mechanical reels refer to the traditional hardware reels, with their associated latches and various mechanical parts. A mechanical reel usually has a set number of symbols disposed about a circumference of a reel strip attached to a wheel. A motor, spring, or other mechanical system physically spins the wheel until it stops at a rotational position and a particular symbol rests in view of a player to indicate an outcome for the reel game. In many older machines, the reels and symbols were spun by potential energy first stored in a spring-loaded mechanism wound and then actuated by the pull of a traditional pull-arm handle. Each reel was stopped at a random position by a mechanical device. The gaming machine senses an outcome, along a central payline, by sensing the position of each reel.

**[0032]** 2-D video reels refer to the use of cartoonish animations that caricature reels in a single 2-D video device. The cartoonish animations do not intend to realistically portray actual mechanical reels, nor do they.

**[0033]** Realistic video simulation of mechanical reels, using embodiments described herein, refers to 2-D and/or 3-D hardware and/or software attempts to emulate actual mechanical reels. Their goal is to have a player perceive a real mechanical reel, at least partially. In particular, embodiments described herein contribute to the perception of a mechanically driven reel slot machine by simulating perceived realistic visual attributes of a real mechanical reel in a gaming machine. Briefly, these perceived realistic visual attributes may include one or more of: outward bowing of video reel edges to simulate perceived curvature of an actual circular mechanical reel, variable lighting of video reel displays to simulate perceived reel curvature and out of plane dimensions of an actual curved reel, the inclusion of video simulations of mechanical components between the reel strips (e.g., latches and other mechanisms that a person can see in a mechanical reel gaming machine), backlight blinking of video reel symbols to simulate lighting used in old-fashioned mechanical systems, etc. Other video adaptations are also suitable for use.

**[0034]** The embodiments described herein use video to increase the perception that a processor-based gaming machine includes real mechanical reels. Old mechanical reel-based gaming machines have numerous mechanical attributes—such as mechanical parts and components, 3-D features, and static imperfections—that are visibly perceivable. As the inventor discovered, video data that emulates these visible mechanical attributes can add to the perception of real mechanical machine by a person who is near a processor-based machine.

**[0035]** In one embodiment, embodiments described herein add perspective to the visual display of video reels. This may include virtual perspective in the video data using lighting and geometric adaptations that convey the perception of real reels. In another embodiment, embodiments described herein add parallax using layered displays and an actual distance between the displays.

**[0036]** FIGS. 2-3 below describe embodiments that include video data adaptations that each simulate a realistic visual attribute of a real mechanical reel gaming machine.

**[0037]** In addition to video adaptations, a gaming machine as described herein attempting to emulate a mechanically